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ABSTRACT

This report, designed especially for use by researchers, evaluators, and teachers, explores the practical implications of the composing process for writing instruction and assessment. An understanding of the actual process of text composition is presented as insights into how the acquisition of aspects of writing might be facilitated are explored. The heart of the writing process lies in the act of composing, assembling potential content, and transforming it into coherent text. Attention is focused on the development of basic level writing skills during the elementary and junior high school years. The goals of a writing curriculum must include the development of both ad hoc strategies and conventional knowledge. Strategies for implementing this curriculum suppose that beginners will become better at solving composition problems if their assignments and discussions are organized around the structural and functional properties of text. In addition, young writers will benefit from activities designed to make these properties available for conscious reflection and articulation. Attention is given to the development of overall plans for a discourse, the development of skill in transforming those plans into text, the development of skill in organizing and integrating composing tasks, and the implications of these developments for writing instruction. (Author/JK)

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Learning to Write: Some Cognitive and Linguistic Components

Elsa Jaffe Bartlett

Introduction by Jana Staton

Roger W. Shuy, General Series Editor

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Contents

Introduction		vii
Chapter 1	The Second 'R'	1
Chapter 2	Text Concept and Discourse Plans	7
Chapter 3	Coherence and Wording	16
Chapter 4	Learning to Write	24
Chapter 5	A Brief Summary	29
References		32

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E.J.B.

Introduction

Research on writing and writing development has mushroomed in recent years, but thus far it has told us far more about the expectations and constraints created by the schools than about the nature and development of writing (Britton et al., 1975; Shuy, 1981). We know what young writers do under typical composition-writing circumstances, but we do not know much about what they can do, nor about strategies and constraints inherent in the act of composing written text (Bereiter, 1979). These limitations result from concentrating analyses on the easily observable features of written texts--an approach in which writing is narrowly defined as a "product." Fortunately, a strong new line of research is developing that views writing as a process and studies the plans, decisions, strategies, and constraints involved.

In this book, Elsa Bartlett has organized and synthesized data on the composing process to clearly show the instructional implications. The paper is designed especially for use by researchers, evaluators, and teachers who want to understand the direct, practical implications of this research for writing instruction and assessment, particularly for "young" writers (elementary and junior high or middle school). Bartlett sees writing as an act of communication, in contrast to a perspective implicitly held by many educators and students for whom writing is the observable product. She presents a picture of writing from the producer's point of view, as "a highly complex and difficulty activity, requiring integration of many different cognitive and linguistic processes."

Research on the composing process tries to understand what Bartlett calls the "heart of writing"--the assembling of potential information by the writer into a plan for written discourse and the transformation of that content into coherent text. The research of Bartlett, Flower and Hayes, and Scardamalia and Bereiter reviewed here focuses on how this process occurs and on the difficulties involved. The cognitive focus thus is not concerned with surface features of writing (spelling, handwriting) nor with the larger instructional context that constrains or facilitates writing in the classroom. Keeping in mind this deliberate focus, we can learn much about the nature of the composing process: how are overall plans for writing a text developed, and what are the difficulties young writers face in making a plan? What skills are needed in transforming these plans into coherent text? What problems do young writers face because of the differences between spoken language production, at which they are eminently competent by age five, and written language production?

An understanding of the way written texts are composed also can help teachers, students, and researchers to spot some of the common myths about writing. For example, the composing process research demonstrates convincingly that writing doesn't happen "all at once," and that writing is not a "picture" of the writer's mind but is instead a complex creation reflecting the struggle to translate [illegible]s into text. Composing a story,

descriptive essay, or set of directions requires that the writer have a "plan" based on some conception of what the particular text structure is about. Although we often teach and test young writers as if such knowledge were innate, research shows that students are not born with such concepts and that the acquisition of knowledge of the features of a story or expository essay continues through late adolescence.

Another myth is that revising a paragraph written by another is a good test of one's ability to revise one's own work. Bartlett demonstrates the major differences in the two tasks. She challenges teachers to have students learn revision with self-generated writing and questions the validity of assessing editing skills by using nonself-generated text. Bartlett describes the difficulties of the composing process in order to argue that we should focus on helping students recognize and understand that these are real difficulties all writers face. She suggests that instruction be based on some of the real problems of writing a text: learning to create cohesive ties and unambiguous co-references and learning to reread what one has written from the audience's perspective.

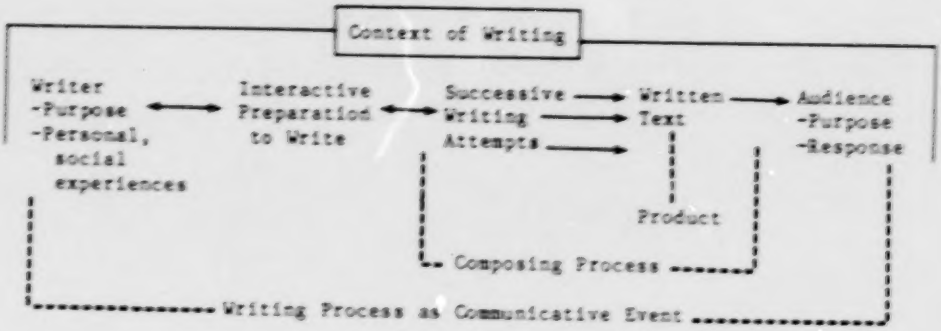
This study presents an up-to-date understanding of the "heart" of writing--the actual real-time process of composing a text. If this, then, is the "heart" of the process, what of the rest of the writing process surrounding the act of composing -- the physical and social context involving an audience and the occurrences of events about which the writer has reason to write? We clearly need to know a great deal more about the actual context and process of writing, if we are to facilitate the composing process. Bartlett points out that "writers generally approach their task with some intention to produce a text of a certain...genre or type" and goes on to describe the process of doing so. But we also need to know what brings students to the point of having a genuine intention to write. What leads them to select a certain type of text for a particular audience and then to devise a plan for translating their ideas into written form?

Although these questions are not about the composing process itself, they are central to whether writing will occur in any meaningful way. We must not think that the solution to narrow attention on isolating and evaluating the surface product of writing will we to refocus on the separate components of the composing process. The view of the composing process as central to the writing process should not result in students practicing it apart from the intentions, audiences, and events about which there is something worth saying and apart from extended writing activities.

Recent national studies of writing in American schools have shown a disturbing picture (Graves, 1978; Applebee, 1980) of whether students are being given the opportunity to write. Students at both elementary and secondary levels are not often involved in writing coherent, complete discourse, nor are they involved in using writing much at all. The National Study of Secondary School Writing (Applebee, 1980) found that only three percent of the student's time is spent on "extended writing" activities — the generation of written discourse in which the skills and knowledge of the composing process is needed. Graves found similar lack of involvement with extended writing at the elementary level. The research on the composing process can be of value only if the complete process is allowed to happen over and over again.

This research on the composing process, then, needs to be seen within a larger framework of the writing process as complex communicative interaction. As communicative interaction, writing also includes the writer's intentions and purposes, which lead to the decision to write; interactions with others in order to gather information; and the relationship to an audience, including the potential responses from the audience.

FRAMEWORK OF THE COMPOSING PROCESS



The educator is responsible for creating, maintaining, and assessing this entire process, and there is research to suggest that the greatest failure of writing instruction and assessment comes in not creating conditions under which students would have reason to compose a text (Graves, 1978, 1979). The teacher who determines the topics, instead of allowing them to be self-generated, who neither allows students to write to real audiences nor plays the role of an audience by responding with real questions and comments, eliminates most of the reasons for writing (Staton, 1981). Children are competent communicators who approach the writing task with experience in being relevant, specific, and generally informative. In trying to make writing "easy" by providing overly simple, standard topics for writing, we are giving the students topics about which nothing new can be said.

The research on the social context of writing by Florio (Florio 1979; Florio and Clark 1981), along with that already cited by Graves and Staton, supports the conclusion that young writers' difficulties with composing are the direct consequence of the kinds of formal text structure they are asked to produce, often without any exposure to useful models, and the degree and abruptness with which we remove the supports available to them in oral discourse. These discourse supports include having a known audience able to provide feedback, having self-generated topics, and having the interactional support of the other speaker in accomplishing the purpose of the communication (Cazden, 1979; Mehan, 1979). Shuy has pointed out that to assess writing proficiency by asking young students to write under the double constraints of no social contextual support and without knowing the strategies necessary for producing written text, is similar to "assessing ability to walk by having someone walk on slippery pavement with a broken toe and high-heeled shoes" (1981). Consequently, we learn about the effects of constraints and expectations rather than about the students' ability to write.

Bartlett's findings about the composing process contribute greatly to the effort to develop an instructional context that encourages writing about self-generated topics--writing that is purposive or functional from the student's perspective. This combination of a focused look at the composing process and an understanding of context provides the basis for a rich mixture of educational practices to support and facilitate the composing process and to allow it to happen in meaningful ways.

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Chapter 1

The Second "R"

Declining Competency

Children's ability to produce written discourse seems to be declining. The evidence comes from a number of sources. The National Assessment of Educational Progress, which conducts regular surveys of students' academic knowledge, reports a marked decline in children's writing skills in the four years between the 1969 and 1974 assessments (NAEP, 1975). Most recently, the New York State Board of Regents announced that four out of five eighth, ninth, and tenth graders (including those bound for college) failed or barely passed a new writing competency test which required only that they write a simple business letter and a 150-word composition (New York Times, September 10, 1977). More generally, even our most prestigious colleges are finding it necessary to set up writing clinics and other remedial programs, not just for "special" or low income students, but for students across the board. For example, Wheeler (1979) reports that nearly half the entering freshmen at the University of California, Berkeley, are required to take remedial writing courses while at the University of Michigan and the University of Georgia, remedial writing replaces the one term of freshman English common ten years ago.

Educators suggest a number of reasons for the decline. Increased television viewing is almost always mentioned, but there are other villains as well. Wheeler, for example, lays much of the blame on the testing industry, citing its extensive use of multiple choice items and its failure to require writing on major achievement, aptitude, and licensing examinations. There is no question that it is quicker and cheaper to score multiple choice items than individual essays, but the problem runs deeper than an industry's need to produce a reliable but cost-effective score.

These tests serve an important gatekeeping function in our society, determining who will go to college and professional school and who, after schooling, will be licensed to practice. Were these tests to require no reading or mathematics, we would surely dismiss them as inappropriate or trivial. That we continue to take them seriously, despite the fact that they require virtually no writing, is an important indication of our present ambivalence toward writing skill. On the one hand, we complain of poor writing in our workforce, but we are not sufficiently interested in insuring that these skills exist to insist that their assessment be part of our gatekeeping procedures.

Given our present ambivalence, it is not surprising to find a decline in our schools' commitment to writing. For instance, Graves (1981) notes that only ten to fifteen percent of the material in children's language arts texts and workbooks involves writing, a particularly striking figure when we realize that more than ninety percent of classroom instruction is

governed by these materials. Graves also cites data from a recent large survey of seventeen year olds who were asked to indicate how much writing they had done in all their courses during the previous six weeks. The results indicate that fifty percent had written only two or three pages (or about half a page per week), twelve percent had written only one short page, and thirteen percent had done no writing at all.

Graves cites other figures that reinforce this impression of a lack of commitment to writing. He notes that for every dollar spent on the teaching of writing, a hundred or more are spent on reading. Further: "Of exemplary programs in Language chosen for recognition by the U. S. Office of Education in 1976, forty-six were in reading, only seven included any writing objectives at all and only one was designed for the specific development of writing abilities." (p. 12) Finally, he cites data from a survey of school superintendents who were asked to describe the minimum criteria used in interviewing candidates for an elementary teaching position. Seventy-eight percent thought that teachers should have a minimum of three courses in teaching of reading, but comparable criteria relating to writing were not necessary. In sum, today's children are likely to have had relatively little practice with many forms of written discourse. At the same time, given the current disregard of writing as a prerequisite for college and professional schools, individuals are likely to have little motivation for developing writing skills while elementary and high schools are likely to feel little commitment to foster them.

Given these conditions, it is no wonder that writing skill has been declining. Fortunately, however, the last two or three years have brought a growing awareness of the problem along with a resolve among many educators, parents, and business leaders to do something about it. Declines in writing scores are beginning to make headlines. Articles and books about a "writing crisis" are beginning to appear (see, for example, New York Times, September 18, 1979). School superintendents are beginning to call for "crash programs." Funding for research is becoming available. Writing is assuming more importance as a topic at educational conferences.

Although the problem of declining writing is a complicated one, the success of any attempt to halt this decline ultimately will depend on our instructional efforts. These need not take place in school settings; one can envision, for example, writing instruction as part of on-the-job training or other adult education efforts. In the end, however, it is the effectiveness of our instruction, no matter where it is delivered, that will make the difference.

One of the principal obstacles to the development of more effective instructional programs is ambiguity about the processes which enter into writing. Cognitive and linguistic explanations for writers' problems are generally adduced on an ad hoc basis, and remedies are all too often suggested without any serious attempt to formulate a coherent picture of what it is that writers must actually learn to do. For example, a recent writing assessment noted that many children had difficulty establishing a coherent voice in their narrative writings. Although the problem could be related to a number of underlying cognitive or linguistic difficulties (difficulties in establishing referential cohesion, for example), the researchers somewhat arbitrarily asserted that the principal problem concerned children's inability to imagine events from another's point of view and advised teachers to engage children in a series of role-play exercises. It is plausible that role-play will help children develop more flexible imaginations and it is even possible that increased flexibility may make some contribution to children's ability to establish a consistent narrative voice, but the link between role play and text construction is hardly simple or straightforward.

Construction of written text is a highly complex and difficult activity, requiring skilled integration of many different linguistic and cognitive processes. Problems may develop at any stage and, indeed, it is possible that similar-seeming errors are the result of very different underlying difficulties. For teachers and researchers concerned with diagnosis and remediation (as well as the evaluation of a burgeoning number of claims about writing instruction) it is crucial to begin to differentiate some of these processes in order to begin to assess their potential contributions to growth in writing.

A Definition

Writing is a complicated business, involving writers, readers, and some shared knowledge of language. It can be defined in any number of ways. Some view it chiefly in terms of its affect on the writer: an excellent way for students to achieve an identity or master new information or explore the intricacies of language. For example: "Writing...is inherently a learning activity in which experience is translated in special ways into terms the writer can understand and store for use. People...can evaluate a child's writing in terms of the degree to which his attempt to write is enabled him to shape, control and thus understand something previously beyond his grasp." (Brown, p.5)

Although the act of writing may have these and other benefits for a writer, for our present purposes we will consider writing primarily as an act of communication. People do, of course, engage in writing without any particular intent to communicate with others: they make lists and reminders, they keep diaries, and so forth. But for our present discussion, we will be concerned almost entirely with writings that are ultimately intended to be read by others. To communicate effectively, a writer must choose language that enables a reader to achieve an intended interpretation. In a sense, we can say that the language provides a reader with a set of instructions for constructing his or her interpretation and these will be good or bad, depending on whether they enable a reader to integrate information from the text efficiently, unambiguously, and appropriately.

Some Components of Writing Skill

Writing begins with an intent to accomplish something and these intentions are of two sorts. On the one hand, we write in order to have some intended effect on our readers. At the same time, we write in order to produce a certain type of artifact. These can be amazingly intricate in structure (e.g., novels or haiku) or fairly simple (e.g., personal letters or memos). In any case, a writer must manage to keep both intentions in mind while grappling with the problem of turning these intentions into words. The actual selection of syntax and wording will be constrained by a number of different considerations. Ideas for content must be shaped to a syntactic structure, with elements formulated into subjects and predicates. At the same time, wordings must be chosen that will enable readers to link the incoming information to what they already know about the text.

Generally, we can say that writers must manage to juggle two sorts of tasks: on the one hand, they must maintain some consistent overall plan for a discourse, which guides the selection and arrangement of potential content. On the other hand, they must simultaneously cope with the on-going problem of turning that potential content into coherent, unambiguous text. It is clear that to accomplish this, writers must draw on an enormous range of skills and knowledge. For example, consider this science report by a six year old. The topic is volcanoes and the text is concerned with the youngster's knowledge both of volcanoes and of how to make volcano models:

(page 1) Wute* is a volkcano?
a mawtin that exploz fire.

(page 2) Wute is a sleeping volkcano?
a volkcano that exploz and duzint.

(page 3) Wute is a ded volkcano?
a volcano that nevr exploz.

(page 4) Wher is a irel** volkano?
in hwie!

(page 5) How to make a volkcano?
1 shap it out uf clay.

(page 6) 2 Put the lite in.
3 I panted it.
4 I shlaced it.***

Two things are immediately evident: the younger writer is utilizing his knowledge of volcanoes and volcano model-building, and he is also utilizing a recognizable question-and-answer discourse plan that involves an impersonal third-person account of volcanoes and a non-anecdotal impersonal account of how to make volcano models. At some point in the composing process he must have summoned up what was then only a potential content, based no doubt on what he had gleaned about volcanoes from books, conversations with his teachers, a museum trip, and perhaps some television viewing. Additionally, he must have recalled his own experiences constructing a volcano model in class. At the same time, he must have developed a plan for writing this down. Although the source of his plan may be a little difficult to specify, it is likely that the idea came in part from his understanding of the particular assignment (to write a science report) and his knowledge of how similar assignments had been carried out in this particular classroom before.

In any case, it is clear that a major part of the writer's task was to select from his knowledge of volcanoes information that could serve as potential content for the text and to transform that content into language which was consistent with his overall plan for the discourse. As we can see, he initially shows considerable skill in accomplishing this, but toward the end, he seems to lose track of the plan and drifts into an anecdotal first person account of his personal experience constructing volcano models. Why the discourse plan might have broken down at this particular point is a question that will be considered in detail in chapter 2. For now, I want to point out that one aspect of composing involves integrating topic with discourse plan and that at times this integration can be quite difficult for writers to achieve.

Integration of topic with discourse plan is only one of the problems facing a young writer. Consider, for example, the following by an eight year old. It was produced in response to a classroom assignment that asked the children to compose texts which followed the basic plan of a familiar and well-loved story, Remy Charlip's Fortunately (1964):

(title) A Trip to the Beach
A Fortunately Book

---

* I have retained the original spelling and punctuation in all children's texts.

** airel volkano? = a real volcano?

*** I shlaced it = I shellacked it.

(page 1) Fortunately he got a letter to go to the beach.
(page 2) Unfortunately he did not know where to go.
(page 3) Fortunately they came to pick him up.
(page 4) Unfortunately we got lost.
(page 5) Fortunately we found the beach.
(page 6) Unfortunately it was the wrong beach.
(page 7) Fortunately they desired to stay.
(page 8) Unfortunately they were kicked out.
(page 9) Fortunately they went home.
(page 10) Unfortunately they were speeding.
(page 11) Fortunately he let us go.
(page 12) Unfortunately we got lost on the way home.
(page 13) Fortunately we got home.

Here the simple discourse plan is successfully maintained as the writer consistently alternates contrastive single-sentence event descriptions. But another problem is immediately apparent: how is a reader to interpret the various pronouns? The author has supplied pictures which make possible a few interpretations, but even with the pictures most of the hes, wes, and theys remain quite obscure.

These difficulties highlight another aspect of a writer's job: managing information so that a reader has sufficient context to interpret a particular piece of text. Sometimes, as in the preceeding example, the needed information for contextualizing is never provided. The reader is simply left with a sprinkling of unidentifiable pronouns.

In other cases, the problem seems to be more a matter of timing: a reader gets the information, but it comes well after it is needed. As an example, consider this text by another eight year old, composed in response to a researcher's request to write a story about a set of pictures:

> Once upon a time three boys were going to ice skate One of them fell thru a hole in the ice The two boys helped the boy up. Then the boys went home. There name was Bob and Joe and Pete Pete fell thru The end.

Even without additional information, a reader can make some sense of the third sentence; however, prior introduction of names would have provided some definite referents for the nouns and enabled the writer to avoid the somewhat vague and awkward the boy. Apparently the writer felt this as well, for she eventually added this extra information. Unfortunately, the addition comes well after the reader has struggled to make sense of the awkward bit of text.

The point is that writers must integrate considerations of topic and discourse plan with necessary and appropriate interpretive contexts. Once again, it is important to stress that considerations governing the use of an overall discourse plan may be quite separate from those governing the construction of more local interpretative contexts, as the Fortunately book example demonstrates.

Of course these are only some of the considerations that writers must attempt to integrate during composition of text. Along with selecting and organizing information, writers must also cope with problems of wording. At every point, a potential content must be cast in the form of some syntactic structure. Specific words must be chosen, and these must eventually be transcribed, a process that involves (among other things) spelling, punctuation, and handwriting.

In short, we can view writing as a complicated four-pronged task. On the one hand, a writer must sustain and carry out some overall discourse

plan, which guides the selection and organization of potential content. At the same time, a writer must select wording that transforms potential content into a coherent, unambiguous text. Then text must be transcribed. And throughout, writers must cope with the formidable problem of integrating and orchestrating the many subtasks and procedures involved.

The Purpose of This Paper

The purpose of this paper is to describe how some of these aspects of writing might be acquired and to indicate in a general way what teachers might do to facilitate acquisition. My intention here is not so much to review the developmental literature as to describe the results of a few studies that address certain basic developmental questions and that do so in ways having important implications for writing instruction. My selections have been guided by two considerations.

First, it seemed to me that the heart of the writing process lies in the act of composing, of assembling potential content and transforming it into coherent text, and so my focus has been primarily on these two aspects of writing skill. Unfortunately, this means that I have largely ignored the important problem of transcription. The reader interested in this aspect of writing development should consult Marie Clay's fine report of the development of transcription skills in very young writers (1975) as well as the excellent research concerning children's knowledge of spelling-sound relations by Read (1978) and Chomsky (1979).

Second, it seemed important to focus the discussion on the development of basic level skills, since these form the foundation for all further development in writing. At one point, I had considered including research on the development of these skills in adult writers, but a reading of Mina Shaughnessy's pioneering discussion of basic level college writing (1977) convinced me that I could add nothing to her insightful account. It seems most useful, therefore, to focus on research concerning the development of basic skills during the elementary and junior high school years.

The discussion in this piece emphasizes the point that writing, like many other problem-solving activities, is both an ad hoc and a patterned kind of activity. On the one hand, there is the obvious fact that each new composition represents a new solution to the problem of content organization and wording; on the other, there is the view that much of what writers do comes from their knowledge of conventional patterns of text construction. Given this framework, I will argue that the goals of a writing curriculum must include the development of both ad hoc strategies and conventional knowledge and that in implementing such a curriculum, two sorts of strategies will prove useful. One strategy supposes that beginners will become better at solving composing problems if their assignments and discussions are organized around the structural and functional properties of text. The other supposes that young writers will benefit from activities designed to make these properties available for conscious reflection and articulation.

These points are stressed both in connection with the development of overall plans for a discourse (chapter 2) and the development of skill in transforming those plans into text (chapter 3). The argument is then extended to a discussion of the development of skill in organizing and integrating composing tasks (chapter 4) and a summary of the implications of these discussions for writing instruction (chapter 5).

Chapter 2

Text Concept & Discourse Plans

Concepts and Plans

What is meant by the claim that writers work within the framework of a discourse plan? What are the elements of such a plan? How are they learned? We can begin by noting that writers generally approach their task with some intention to produce a text of a certain genre or type: e.g., a business letter, an editorial, or a recipe. In a sense, we can say that a writer thinks about the task in terms of some notion which he or she holds about the nature of the finished text. These include notions about appropriate content, about its arrangement, and perhaps about its wording. For example, by intending to compose a recipe, a writer has essentially called to mind certain aspects of content and wording of the finished text. That is, it will consist of two distinct parts (a list of ingredients and a list of procedures for preparing and combining these into some edible product); ingredients and procedures will be arranged in an order-of-use sequence; and information about ingredients will be worded as a series of noun phrases while procedures will occur as imperative sentences.

The point is that in planning to produce discourse of a certain type, writers can call to mind certain features of the to-be-composed text, even before the actual writing begins. Essentially, we can say that such knowledge provides a writer with a kind of ready-made plan for making a number of decisions. It can be a powerful aid in assembling potential content, and it can also help in the selection of syntactic structures and vocabulary.

How Knowledge of Text Develops

Most of the current research on the development of text concepts and plans has focused on the way in which children's knowledge of different types of text changes during the school years and, particularly, on the sequence in which different aspects of a text seem to be acquired. For the most part, these efforts have focused on the development of narrative and expository forms that tend to be rather lengthy and complex. Development of children's knowledge of other relatively compact or simple forms (e.g., recipes, personal letters) as well as forms with highly repetitive, predictable surface structures (e.g., riddles, limericks, knock-knock jokes) have received much less attention.

Data from research on narratives suggest that while some initial learning seems to occur fairly early, knowledge of these forms continues to

develop rather slowly throughout the elementary and junior high school years. Thus, we find that by the age of five or six, most children will have developed some knowledge of basic narrative plot structure: their dictated stories will tend to have recognizable protagonists and to be organized around simple conflicts or problems and their resolutions. In addition, by the age of about five, most children will have acquired some knowledge of conventional storytelling language. For example, they are likely to use the introducer "Once upon a time..." and occasionally, the ending marker "...and they lived happily ever after." Although these basic elements appear to be incorporated into many of their early stories, other important narrative elements only begin to occur during the later elementary years. For example, explicit information about characters' motives, plans, and reactions are not routinely incorporated into story writing until the fifth or sixth grades. Similarly, while younger elementary age children are well able to provide coherent descriptions of story actions, it is not until the later elementary and junior high school years that writers routinely begin to add supporting details that enable a reader to envision more precisely how an event occurred (see for example, the discussion of narrative development in Bartlett, 1979).

The resulting text differences are readily apparent in the following two stories, composed by a third and a sixth grader. They were elicited by a researcher as part of a study of narrative development in third through seventh graders and are quite typical of the responses obtained from the more skilled writers at their respective grade levels. In each case, the children were asked to write a story about the same seven-panel cartoon:

Third grader's text: Once upon a time there were three boys Mo, Larry, Curly. They were Ice skating and Curly, the dum-dum went into the thin ice. He fell in the water trying to keep himself up. Larry & Mo went to a tree, pulled off a branch and Curly, the do-do gripped and Larry & Mo pulled him up & They lived happily ever after.

Sixth grader's text: It was a crisp, cold day and six boys had just finished a hocky game. Three went home but Henry, Mike and Robby stayed

Robby's team had won and he was being very smug about it. Henry and Mike were disgusted at the way Robby was acting and were trying to ignore him.

Suddenly they heard a loud crack & saw Robby falling. They forgot that they had been mad at Robby: now they were just scared.

"Robby we'll help you!" said a desperate Henry.

Quickly Henry and Mike skated to the nearest tree. They broke off a branch and went back to Robby. But when they tried to pull him out with it, the branch broke.

"Hey guys you better help me quick! My legs are beginning to fell numb!" said Robby in a rasping voice.

Mike had a good idea. He remembered the hockey sticks that were across the lake. He got one and together he and Henry pulled Robby out. Robby was cold but they were happy that he was still alive.

The third grader provides a coherent account of the action, along with a few narrative embellishments: for example, he gives the characters names. Conventional narrative language is also used to open and close the story. At the same time, the writer provides only a rudimentary motivational

structure (i.e., Curly falls in because he is dumb) and makes no attempt to characterize the circumstances surrounding the main events. By contrast, the sixth grader's story offers a rich motivational structure along with a fairly detailed account of the way in which events occur, including an account of some of the actual words uttered. The writer tells something about the events that preceded the main action and gives a number of descriptive details about what things looked like, how they sounded. Furthermore, he gives explicit information about how the boys felt, how their feelings changed, and how their feelings resulted in various actions. The point is not simply that older writers write longer or more complicated texts, but the older writers include a wider range of narrative information. Given the differences, we might speculate that the older writer draws on a more elaborate concept of what constitutes a story.

Data on expository writing suggest an even lengthier period of basic development that extends into high school and college. Although few details are as yet available, it is clear from the work of Scardamalia, Bereiter, and their colleagues that most elementary and junior high school students are still very much in the process of acquiring even the most rudimentary features (Scardamalia, in press; Bereiter, Scardamalia and Turkish, n.d.,; Hidi and Hillyard, n.d.). Scardamalia notes that writers in this age range have difficulty integrating ideas into some of the usual expository frameworks, and her examples indicate that they have difficulty constructing generalization-plus-example plans or causal sequences of thesis-antithesis integrations. Consider these attempts to formulate an argument in response to the question: "Should students be able to choose what things they study in school?":

> Text One: In School We should Be Able To Do Any Kind of We Want To Do We Are Free We Could Do Anything We Want God Us Free We Could Do Anything we Want To Do I'd Like Spelling And Math In School We Should Do It Any Time We Want. (Scardamalia, in press, ms. p.11)

> Text Two: Should children choosen what they want to study on? Do you think children should choose what they want for social studies? I do. Because, would you like to study on something you don't like? Would you like to study on Brazil or Peru? Would you like to study on these countries?! Or other countries that are almost unknown to mankind? No. Not I. Who would suffer? We would if we had to study on countries like Brazil and Peru?! No! We would only find half as much as is known to man! No! We shall not suffer on this case!! No we won't....(Ibid., pp. 14, 15)

> Text Three: Should Students be able to choose what they study in school.
> Students are very sneeky and lazy. Most children would probably choose recess all the time but I still think that it is good.
> Only is it good though, if the subjects are limited to 4 or 6 things such as Reading, Math, Social Studies, Science, art or French. The students though would probably all ways pick art and not get work done. (Ibid., pp.16, 17)

In the first text, as Scardamalia notes, the student's response is to reiterate a single idea, that students should be free. In the second, the writer appears to be constructing a generalization (that the present school curriculum is inadequate) along with some supporting evidence, but the relation between the two remains somewhat vague. In any case, the writer seems unable to move his argument beyond the simple repetition of a single

example. In the third text, the writer is presumably attempting to integrate two notions into a thesis-antithesis contrast (it would be nice to choose courses, but students are lazy), but the contradiction between the two notions is never integrated or resolved.

Scardamalia claims that these texts are typical of attempts by children in the upper elementary and junior high school age range and points out that they are less successful than these children's narratives (see also Bereiter, Scardamalia and Turkish as well as Hidi and Hillyard). She suggests that the slower development of expository forms may be due in large part to the cognitive complexity inherent in their logical structures and claims that students in this age range may have difficulty integrating two or more ideas into a logically consistent whole. While this may be true, it may also be the case that students in this age range have had very limited exposure to examples of these forms and, as a result, have had little opportunity to develop appropriate text concepts or models. With more exposure, the rate of development might begin to approximate that of narrative texts.

While it is clear that children's narratives (if not their expository texts) become increasingly more elaborate and complex during the elementary and junior high school years, we know very little as yet about the details of these changes. Longitudinal data would be especially valuable here, but as far as I know, only one such study exists. Its results, which are quite intriguing, suggest that changes seem to involve very gradual and subtle transformations of existing text concepts, concepts which basically remain quite stable and consistent over long periods of time.

The data, reported in a study by Waters (1980), consist of 120 "class news" reports composed by one second grader in the course of a school year. At the beginning of the year, the teacher provided a few instructions concerning the type of material that the children might include, but beyond this, the children were free to determine the content and organization of their own individual texts. Here are some examples taken from texts compared at the beginning, middle, and end of the school year:

> Early school year: Today is Tuesday, September 25, 1956. It is a sunny day. We are glad.
> We went to music this morning. It was fun. Tomorrow the doctor shall look at us. We shall also have assembly.
>
> Mid school year: Today is Tuesday, January 22, 1957. It is a foggy day. We must be careful crossing the road.
> This morning we had music. We learned a new song.
> Linda is absent. we hope she comes back soon.
> We had arithmetic. We made believe that we were buying candy. We had fun.
> We work in our English work books. We learned when to use is and are.
>
> Late school year: Today is Monday, May 27, 1957. It is a warm, cloudy day. We hope the sun comes out.
> This afternoon we had music. We enjoyed it. We went out to play.
> Carole is absent. We hope she comes back soon.
> We had a spelling lesson. We learned about a dozen.
> Tomorrow we shall have show and tell.
> Some of us have spelling sentences to do for homework.
> Danny brought in a cocoon. It will turn into a butterfly.
> (Waters, pp. 155, 157, 159)

It is evident that these three texts have many features in common. Each begins with the date, a description of the weather, and some evaluative comment or reaction. This is followed by descriptions of present and future class activities or news about peers, again often followed by some evaluative response that indicates the significance of the event to the writer. In fact, so similar are the texts that Waters found she could characterize their content and its organization in terms of only a very few simple notions or writing "rules." Indeed, she needed only six such rules to characterize the texts written during the first few months of the year and no more than thirteen for the final ones. Moreover, these rules were remarkably inclusive, accounting for between 91 and 98 percent of the text produced.

In all, Waters constructed three spearate rule systems (or "grammars") to account for texts produced in the beginning, middle, and end of the year. Here is the system constructed to account for the early texts:

"Class news" grammar rules, September

(1) Class news → * Day + Activities
* The symbol → means "can be rewritten as" or more informally, "consists of".
(2) Day → Date + Weather
(3) Weather → Description + Response to Description
(4) Description → Description 1 + (Description 2)**
** Item in parentheses are optional.
(5) Activities → Activity 1 + (Activity 2)
(6) Activity (n) → Statement of Activity + (Specify Account) + (Time of Day) + (Response to Activity)
(Waters 155)

Interestingly, Waters found that in constructing each successive rule system, she was able to include all of the rules required by the preceding system. Often the new version of a rule would be more elaborate, applying to a greater variety of information and arranging it in a somewhat more complicated way. The fact that old rules were readily incorporated into the new rule system indicates that the texts could be characterized in terms of a consistent system that was apparently maintained across a full year's time.

Two things can be concluded from this study. First, the data suggest that this student was composing in terms of a very stable and well-specified notion of what constitutes a "class news" report. Moreover, the fact that changes seemed to involve gradual adaptations of old structures, rather than abrupt introductions of new, suggests that the composing was basically a conservative activity and that this youngster approached the problem of constructing new compositions by attempting to relate new situations - new combinations of topic and language - to previous solutions. In general, it seems as if this student was composing in terms of some consistent, well-formulated, and highly stable notions of the structural and linguistic properties of "class news" reports.

It can be argued, of course, that "class news" reports are very simple, circumscribed, and highly repetitive types of text and that individual children are less likely to exhibit this sort of structural consistency in their narrative and expository writings. However, it is not inconceivable that children who are learning to compose in these forms do in fact produce texts which exhibit similarly stable and consistent structural properties. Indeed, such consistency would provide strong evidence that learning had actually occurred.

In any event, writers who can rely on a well-formulated concept of a text have a number of advantages. For one thing, such knowledge provides a writer with a ready-made plan for generating potential content. If, for example, a writer thinks of a "class news" report as consisting of a sequence of types of information (e.g., information about the date, followed by a description of the weather, followed by information about a current class activity), the writer has in effect produced a workable plan of action for assembling some content (e.g., look at the calendar, glance out the window to observe the weather, look at the day's schedule to select an activity). At the same time, if a writer thinks of these structural features in terms of some formulaic or conventional language, then the writer has in effect produced a plan for the wording of whole segments of text (e.g., the notion of date may be represented in terms of a specific text format such as "Today is (name of day), (name of month), (day of month), (year)").

Of course these concepts cannot specify an entire text in advance, since each composition involves its own unique combination of topic and situation. This is as true of highly specified surface formats (e.g., riddles, knock-knock jokes, and perhaps "class news' reports) as it is of more complex forms, such as stories and essays. Writing must always involve some combination of ad hoc decision making as well as well-practiced, well-specified routines. With experience, however, the balance between the two may change. Initially, before a writer has had much experience with a given form, we would expect that writer to spend more time piecing together a potential content for that text than would be necessary once the form has become more familiar. One function of experience, then, is to enable a writer to begin to compose in terms of predictable, well-specified structures.

Tacit or Explicit Knowledge?

Adult writers generally are able to articulate their knowledge of text structure. Flower and Hayes (in press) have found that adult writers discuss their plans for text in terms of well-differentiated structural features: they speak of plans for constructing introductions, generalizations, examples, transitions, summaries, and so forth.

These researchers argue that one important mark of writing skill is the ability to articulate intentions in terms of well-defined text concepts and goals. This does not mean that writing always involves the articulation of explicit composing plans. In fact, there is no question that much of the writing process occurs at a tacit, intuitive level. Neither does it mean that the ability to articulate concepts and plans is a necessary prerequisite for good writing. Undoubtedly, there are some writers who can produce fine texts without being able to explain what they had in mind when they did it, but such writers are probably quite rare. For most of us, the development of skill in writing is accompanied by an increasing ability to articulate (and reflect on) well-defined goals and intentions. Indeed, this ability can be extremely useful. A writer with a well-articulated set of purposes can deliberately reinvoke these to sustain a consistent course of action during the many interruptions and shifts in attention that inevitably accompany composition. Similarly, well-articulated purposes are likely to make it easier for writers to identify errors and construct revision strategies.

Very little is known about the development of children's ability to articulate text concepts and plans. Given the adult data, we would expect to find a gradual increase in children's ability to articulate their text knowledge and a generally positive correlation between articulation and

composing skill (except perhaps at the earliest stages). Only a few studies exist, however, and their results are somewhat difficult to interpret. For example, Bereiter, Scardamalia, and Turkish (n.d.) compared the ability of some fourth and sixth graders to name or describe structural features of stories, descriptions, and essays with the actual presence of these features in the students' texts. They found no relation between the two measures, and in fact, naming turned out to be negatively correlated with production, indicating that the more features children produced, the fewer they actually named. However, as Bereiter, et al., point out, the data come from a working-class population where explicit discussions of various genres is not to be expected. When Bereiter, et al., replicated the study with middle class students, they found that many more features were named. While the data have not yet been fully analyzed, the preliminary results point to a greater congruence between the naming of features and those produced.

Skill in Maintaining Plans

Along with articulating their concepts and plans, writers must also develop skill in maintaining their plans during the difficult and often lengthy process of composition. We have already observed the breakdown of what appeared to be a well-formulated structural plan in one six year old's science report (page 4) and have speculated that the problem involved difficulty integrating the child's knowledge of the topic with the structuring of that topic required by the discourse plan. Although integrating knowledge of topic with an intended discourse plan can be a problem for writers at any age, it can be especially difficult for beginners to handle. Consider, for example, these attempts by two fourth graders. The texts, like the ones on page 8, were composed in response to a researcher's request to write a story about events pictured in a seven-panel cartoon. In each case, the writer adopted the clever strategy of giving one of the characters his own name. As we can see, each begins with a third person discourse structure and then drifts (for no apparent narrative reason) into a first person account, using the first person pronoun to refer to the character who has been given the author's name:

> Text one: (author's name is Danny): One day there were three boys Denny, Keith and Megha. Keith was skating too fast and he bumped into Megha and Megha fell into the ice. Me and Keith got a branch off a tree. We took the branch but it fell apart. Me and Keith went to find something and we found a hockey stick and pulled Megha out.
>
> Text two: (author's name is Chris): One winter day a boy named John called his friends Peter and Chris he said do you want to go ice skating with me they said when now okay we will meet at the pone.
> Then they got there we were playing hockey at first then we were just ice skating then Peter cracked the ice and fell in but not all the way Chris got a piece of a branch and pulled him out.

Inadvertently these writers may have created for themselves a rather difficult organizational task. While the discourse plan may have called for the story to be told from an impersonal, third person point of view, the use of a character having the author's own name may have led the author to forget that the character with his own name was not, in fact, representing himself. This consequently may have led him to adopt the anecdotal, first person point of view customarily associated with narrative accounts of events in which the storyteller himself participates.

It would be interesting to speculate about why these shifts in discourse occur. For example, it may be that under certain circumstances the task of integrating a potential content with a potential discourse plan is extremely difficult. One such situation may occur when a writer is attempting to cast a description of a personally experienced event into an impersonal third-person discourse structure. A writer able to maintain a firm concept of such a structure may have relatively little difficulty integrating the two, but if the text concept or plan is diffuse or fragile, then the initial discourse plan may eventually drift into one more compatible with the way in which the potential content is ordinarily perceived.

We might speculate then that a writer may have difficulty maintaining a discourse plan if its structure or point of view differs substantially from that in which its potential content is usually apprehended. Under such circumstances, we would predict a drift in the organization of text toward the more familiar structure or point of view.* It is interesting to note that of the eleven fourth and fifth graders who attempted such an organization, all but three (one fourth and two fifth graders) were unable to maintain it throughout the discourse. In contrast, of the nine sixth and seventh graders adopting such a plan, all but one were able to maintain it consistently.

Implications for Instruction

To summarize, I have argued that development of skill in writing any particular type of text consists in part of an increasing ability to represent that text in terms of its structural features and to compose in terms of these features. This does not mean that skilled writers need deliberately invoke these features during composition. It does mean, however, that with experience these features generally become more differentiated and at least potentially available for conscious reflection. At the same time, it also means that with experience, writers become increasingly able to maintain these structural representations in the face of the many interruptions and conflicting organizations inherent in the composing process.

How then might teachers foster the development of these skills and concepts? It seems to me that several types of experiences would be helpful. For one thing, students can gain enormously from reading in the various text forms, but the reading must be from a writer's point of view. In this approach, students consider texts in terms of their structural features, attempting to reconstruct the decisions that a writer might have made in assembling the content and finding appropriate words. Young, Becker, and Pike's composition text (1970) provides an example of what I have in mind. Although intended for college expository writing classes, the approach could easily be adapted for use with younger students and in other forms of discourse. Teachers of elementary age children may find that highly simple, patterned texts such as folk tales and fables are particularly useful in heightening their students' awareness of structural pattern. Awareness may also be heightened if beginning writers are given opportunities to try their hands at composing in some of the more highly patterned narrative and expository formats (e.g., the "fortunately...unfortunately..." format of the text on page 5).

*Our examples have dealt primarily with problems in establishing narrative voice, but one would predict similar problems in cases where authors attempt to adopt a time sequence (e.g., a flashback) that does not reflect the sequence in which the writer normally experiences the particular events.

Apart from reading and format practice, beginners may also benefit from occasional guided practice investigating new forms. Such experiences would foster an awareness of strategies by which new forms can be learned and old forms adapted to meet new situations. For example, elementary age children can be given the problem of composing a business letter, a letter of recommendation, a set of instructions for a game, or any other unfamiliar, short, and fairly patterned type of text. After students have reached some consensus concerning the type of information to be included, they can set about the task of composing. Structures and resulting language can be discussed and compared with conventional texts. Similarly, students can be given the task of adapting a familiar "near enough" text (e.g., a recipe) to a new communicative situation (e.g., the need to compose instructions for a game). Resulting texts can be discussed in terms of the way old structures have been adapted to suit new information needs.

As we have noted, some forms of organization may be more difficult to maintain than others, depending on the relation between topic and text structure. Particularly difficult are those situations in which personal experiences are to be conveyed in an impersonal structure. Practice with some of these difficult combinations may be useful in helping writers become more aware of structural inconsistencies and the situations in which these are likely to occur.

These are just a few suggestions. Their purpose is not to provide curriculum since the experienced teacher will be able to think of other activities that are far more appropriate, but to illustrate some of the directions in which curriculum to foster structural knowledge might develop. One of the essential ingredients of such a curriculum would be the clear articulation of structural properties together with considerable practice conceptualizing composing tasks in terms of these. This suggests that writing assignments be organized around structural units, with discussions and text evaluations focused on structural problems. For example, narrative writing assignments might be designed to focus students' attention on the development of particular text units, such as settings, conflicts, or resolutions. In any case, the goals of this part of a writing program would be threefold: to heighten students' awareness of the structural properties of various types of texts, to give students practice articulating their perceptions, and to help them elaborate and enlarge upon existing structural knowledge.

Chapter 3

Coherence & Wording

Constructing an Appropriate Wording

Although construction of an adequate discourse plan is important, writers must manage to cope with other aspects of composition as well. Crucial among these is the need to provide readers with information that can be readily interpreted. In interpreting texts, readers must keep track of incoming information and construct some coherent, organized representation of its meaning by linking up new information to old. Readers must be able to figure out referents for words, appropriate temporal organizations, points of view, and much more.

Writers can make that task more or less difficult, depending on their skill in communicating unambiguous information about how the elements in a text are to be fitted together. Consider, for example, this passage from a text by a fourth grader:

> ...He was exploring a cave when he heard something. He looked around and he saw a another man! (However *he* was in a dark corner so *he* couldn't hardly make out the figure.)... (emphasis mine)

As we can see, the antecedents of the two italicized pronouns are ambiguous and as a result, the reader is unable to complete the interpretation.

Ambiguity is only one type of problem. Often, writers produce wording that, while not outright ambiguous, is nonetheless misleading. Consider, for example, the italicized noun phrase in this fourth grader's text:

> One winter evening to people met on a dark corner. One of the people said, "Do you want to come over to my house?" "Yes," *the other man* said. The to men went home. They got home just in time... (emphasis mine)

The other man implies that there has been some prior mention of another man, but the conscientious reader would search for such a mention in vain. A bit of problem-solving might eventually lead a reader to interpret one of the people to mean "one man," but the text hardly makes this clear.

The reader faces even more serious difficulties in interpreting this fifth grader's text:

> Tom and Jerry were friends. They have a secret club house. Almost every evening they meet in a dark corner that was there club house. It was made out of wood they found. This is how they decided to make it. It was a winter evening (Tom and Jerry will never forget it) two people (Tom and Jerry) met. After words they found out that they were

> in the same class and became best friends and decided that were they met that's were they put there club house and that's were it is.

The problem here is not so much in establishing appropriate referents as in working out an appropriate sequence of events. Past and present tenses are sprinkled inconsistently throughtout the first five sentences. The problem is then exacerbated when the writer introduces some background information in what appears to be a flasnback, preceded by a passage in which the author steps outside of the narrative framework altogether to address the reader directly. The writer's plan is obviously a complicated and sophisticated one, which may account for the fact that the signals in the text are so difficult to follow.

Referential ambiguities and misleading wordings are fairly common in the texts of young writers. Data from our own studies of narratives composed by some 300 third through eighth graders indicate that about forty percent of the children at each grade level produce at least one ambiguity per text. In addition, about thirty-five percent produce at least one instance of misleading wording. Data from studies by Scardamalia, Bereiter, and their colleagues suggest that students have these problems with expository texts as well.

Detecting Text Problems

What kinds of skills are involved in producing interpretable, unambiguous text? For one thing, writers must be able to detect potential problems. They must be able to monitor their texts to make sure that information required for interpretation is actually available. This means that they must keep track of the information explicitly mentioned in a text and, perhaps even more important, come up with a reasonable estimate of what readers will be able to infer.

Writers therefore must be able to differentiate between information which they intended to convey and information actually available in a text. For example, a writer may know and intend to say that Sam Smith is the husband of Sue and the brother of Sarah, but if this information has not already been established in the discourse, then a phrase such as "her husband" or "her brother" will be difficult to interpret. Research by Piaget and his colleagues has demonstrated that elementary age children can have considerable difficulty making just this sort of differentiation (Piaget, 195). Typically, in circumstances where a child's knowledge or perspective differs from that of a listener, the child will fail to take these differences into account, proceeding instead as if the two shared the same knowledge. As Piaget noted, this sort of cognitive egocentrism can lead to a number of communication problems. Among other things, such egocentrism can make it extremely difficult for young writers to detect ambiguities and misleading wordings in their own discourse.

Knowledge of Cohesive Devices

In addition to detecting ambiguities, writers must also understand how language functions in different contexts to signal an interpretation. Consider, for example, the problem of signaling co-reference. English has a number of different devices for signaling that two noun phrases share the same referent, some of which are illustrated here:

Text one: One day an old woman arrived in the town. The old woman was carrying a heavy suitcase. She was tired.
Text two: Two girls were skating on the ice. The two had been playing hockey but now they were just fooling around.
Text three: My friend Nancy has a son. The child is five.

In each text, the italicized noun phrases share the same referent, with co-reference being signaled by the definite articles, lexical repetitions, and pronouns.

In choosing among the various devices, a writer must take account of the context and the set of potential referents from which the intended referent for a noun phrase is to be selected. As an example, consider a situation in which a writer wishes to designate a male as referent in a context which includes two males:

> One day two boys set out for the park. He had a bike...
> One day two boys set out for the park. The boy had a bike...

Here a pronoun will not suffice nor will a noun which has as its meaning only the information that the intended referent is a young male.

There are, however, a number of other ways in which referencing can be accomplished in this particular context. A writer can provide some additional background information about the two boys by giving them names or some sort of physical characteristics:

> One day two boys named Harvey and Frank set out for the park. Harvey had a bike...
>
> One day a fat boy and a skinny boy set out for the park. The fat boy had a bike...

Or a writer can take another tack and solve the problem by changing the basic content of the message. For example, a writer can simply abandon the intention to designate one of the characters and just say that an unspecified one of them (or both of them) brought the bike:

> One day two boys set out for the park. One had a bike and the other, a skateboard...
>
> One day two boys set out for the park. They had a bike....

The point, then, is that writers face two sorts of problems in constructing coherent, unambiguous text. They must be able to assess the information actually available to readers in a text, being careful to differentiate their own intent to inform the information actually transmitted. At the same time, they must be able to select linguistic devices that function in the existing context to convey the intended meaning.

Developing Skill in Detecting Text Inadequacies

Most teachers and researchers would agree that children acquire considerable skill in both aspects of text construction during the elementary and junior high school years. We are only now beginning to uncover some of the details. For example, although Piaget's research would lead us to imagine that elementary children might have considerable difficulty monitoring ambiguity in their own texts, data that assess such a notion are still relatively scarce. Studies by Bracewell, Bereiter, and Scardamalia (n.d.) and by Scardamalia, Bereiter, Gartshore, and Cattani (n.d.) suggest that elementary and high school students have difficulty revising their own texts, but these analyses fail to pinpoint the exact nature of the problem. For example, do children have difficulty revising all types of text problems or are some more difficult than others?

Answers to some of these questions are provided by data from a series of studies in our own laboratory. The data come from two sorts of revision tasks: in one, elementary age children were asked to revise short text com-

posed by the experimenter; in the other, children were asked to revise their own compositions. In both cases, texts were narratives, and in both, we were interested in children's skill in identifying and correcting syntactic and referential anomalies.

In one study we observed fifty-three children in four fifth grade classes. Each composed and later edited a short narrative for publication in a class anthology. In addition, a week after editing their own texts, children were asked to edit a series of eight short paragraphs composed by a researcher. Of these, six contained faulty referring expressions, and two, a missing subject or predicate. Here are some examples*:

> Text one: Policemen sometimes have special jobs. Once there was a policeman who was supposed to chase robbers. One day he got into a policecar and drove to the city to catch a robber. They had a big fight. He was killed.
>
> Text two: One day a man left his house. Another man was standing outside. The man took out a letter and gave it to him. They talked for a while and then they got into a car. They were both policemen. They were going to catch a thief.
>
> Text three: A man was going to the movies. Later was going to meet his wife. They were going to have a Chinese dinner and then take the subway home. But when the man got into the movies he saw he had no money. He had left it at home.

When we looked at the first drafts of children's compositions, we found a total of fifty-two ambiguous referring expressions and thirty sentences with missing subjects or predicates. In their revisions, the children attempted to change seventeen of the thirty sentences with missing subjects or predicates, but they apparently failed to notice the faulty referring expressions since they attempted to change only five of them. This is in marked contrast to their performance on our eight experimenter-prepared paragraphs, where we found no difference at all between their response to ambiguous referring expressions and missing subjects or predicates. Overall, children attempted to change about half of each type of text, averaging about 1.6 of the missing subjects and predicates and about 3.5 of the referring expressions.

This pattern of results has now been replicated with two other groups of fourth graders and another group of fifth graders. It suggests that for children in this age range, skill in detecting incoherent or ambiguous text depends in part on the situation and in part on the particular feature. Where referential features are concerned, children seem fairly skilled in detecting ambiguities in the texts of others but not in their own texts. This is in marked contrast to their skill in detecting certain other anomalies, where performance in the one situation seems roughly comparable to performance in the other. (Our data focused on missing subjects and predicates, but informal observations of other revisions in children's texts suggest that they are equally able to detect problems in subject-verb agreement and verb endings, as well as missing articles, prepositions, conjunctions, and auxiliaries.)

*We chose faulty pronouns, vague nouns, and missing subjects or predicates because these turned out to be the three most frequent types of anomalies observed in earlier studies of children's writing. In fact, the paragraphs of the editing task were adapted from texts actually produced by children in these earlier studies.

The point, then, is not that children have some general difficulty detecting text anomalies, but that they have a special difficulty detecting referential ambiguity in their own texts. Presumably, the difficulty arises in part from what Piaget has termed "egocentrism". Children may be unable to set aside their own intentions and view their compositions through a reader's perspective, bringing to its interpretation just the information actually available in the text. I will discuss the implications of these findings for writing instruction and assessment shortly. Before I do so, it will be useful to consider a second aspect of text skill: children's knowledge of the linguistic devices through which coherent text is constructed.

Learning about Cohesive Devices

Generally, by the time children are in the third or fourth grade, they seem to have acquired a good grasp of the principal linguistic devices for constructing coherent text: they can use pronouns and lexical repetitions to establish co-referencing; they can use adverbs and conjunctions to establish linkages among text elements; they can link elements together with relative clauses; and so forth. To be sure, there are some exceptions. For example, data cited in Palermo and Molfese (1972) suggest that full mastery of the co-referential properties of pronouns may not be achieved until children are well into junior high school and that elementary students may still be uncertain about the semantics of certain adverbs and conjunctions. Nevertheless, it is clear that elementary students have a good grasp of the basic syntactic and semantic properties of these devices. What is less clear is how children actually come to use them in constructing a wording for their texts: how they arrive at a particular device and the extent to which their language reflects a knowledge of or sensitivity to the constraints of the particular context.

As an example of what I have in mind, consider once again the problem of co-referencing. Generally, writers accomplish co-referencing by using a pronoun or by repeating some antecedent referring expression, as in the examples on page 17. This is true of adult writers and elementary students as well. For example, analyses of referring expressions in some 900 narratives, produced by 300 third through eighth graders, indicate that fifty-two percent of the co-referencing is accomplished via pronouns and another forty percent via a repetition of an antecedent expression (e.g., A woman went to the park. The woman was walking a dog.).

Occasionally, of course, these strategies won't work: pronouns and word repetitions will fail to differentiate among potential referents. To accomplish referencing in these circumstances, writers must adopt some other strategy. Most commonly, adult writers solve these problems by adding some new differentiating information to the text. (For example, the texts on page 17.) One important question is whether elementary children will do the same. Will they appreciate the fact that the success of a strategy depends on its context and will they adjust their strategies to reflect contextual constraints? The question was addressed in another series of studies in our laboratory. Once again, the data came from a revision task, this time involving only texts composed by an experimenter. Once again, the texts involved referential ambiguity, but this time instead of focusing on children's skill in detecting ambiguity, we were more interested in their strategies for fixing things up and in the effects of context on strategy selection.

The texts consisted of six short paragraphs of identical referential structure. In each, referents for two noun phrases were in doubt, one a definite noun phrase and the other a pronoun. (The referential structure

was, in fact, identical to the structure of text two, page 19.) Where the texts differed was in the amount of information available in the context for differentiating the two potential antecedents. In one case, differentiating information was available that could readily be used in constructing revised noun phrases. To do so, a writer needed only adopt the simple, familiar device of lexical repetition. For example:

> A girl named Linda lived on State Street. Another girl named Jane lived next door. The girl had a new sled and wouldn't let her ride on it. They argued about it for a long time. Finally, they agreed to share the sled. After that they became best friends.

To revise this text, a writer had only to copy the antecedent Linda and Jane, substituting them for the ambiguous the girl and her.

In the other cases, differentiating information was not available:

> A boy lived in Elm Street. Another boy lived next door. The boy had a new bike and wouldn't let him ride it. They had a big fight about it. They were so mad they didn't speak for a whole week. They should have shared that bike!

Here the antecedents consist of the noun phrases a boy and another boy, which if substituted for the boy and him would not differentiate between them. Thus, the usual strategy of repeating antecedent information will not work. To establish unambiguous referents, something more is required, some new information or some adjustment in the meaning of the existing text.

In one study, 30 sixth and 30 seventh graders were given three examples of each type of paragraph to revise. Of the texts with differentiating information, these children attempted to change about sixty-two percent of the ambiguous sentences and of these attempts, ninety-five percent were successful.* Almost invariably, the correct solution involved the strategy of repeating an existing antecedent noun phrase -- in this case, the characters' names. Working on texts without differentiating information, these children attempted to change fifty-two percent of the ambiguous sentences, which indicates that these children were about as likely to detect ambiguity in the one kind of text as in the other. Successful solutions were less common however. Of the ninty-three attempts to change these sentences, only fifty-one (fifty-eight percent) were successful.

Why did so many attempts fail? Most of the time, when children failed they did so because they were attempting to use the familiar strategy of repeating an antecedent noun phrase, apparently without taking the particular context into account. For example, the majority of poor solutions to the text above involved an attempt to repeat the antecedents a boy, another boy:

> Text:
> A boy lived on Elm Street. Another boy lived next door. The boy had a new bike and wouldn't let the other boy ride it.
>
> Solutions:
> ...The other boy had a new bike and wouldn't let the boy ride it.
> ...The other boy had a new bike and wouldn't let the other boy ride it.

*Attempts were judged successful if two coders agreed that the resulting text was no longer ambiguous.

The problem, of course, is that other requires contexts in which alternatives are clearly designated, and in this case the referent for the alternate noun phrase (the boy) remains unclear.

To solve the problem, a writer had to add new differentiating information or change the basic meaning of the text in some way. About twenty-five percent of the solutions were based on some change of meaning: children either deleted the ambiguous sentence or if they kept it, declined to make any definite reference:

> ...One boy had a new bike and wouldn't let the other boy ride it.

In the majority of cases, however, writers constructed referring expressions based on addition of new information:

> A boy named Charlie lived on Elm Street. Another boy lived next door. Charlie had a new bike....

Results from a number of studies suggest that the insertion of new information into existing text is quite difficult for elementary and junior high school students. For example, Champagne, Scardamalia, Bereiter, and Fine (n.d.) found the third, sixth, and ninth graders had difficulty incorporating new information into their revisions of simple one-and two-sentence texts. Similarly, in his studies of the development of revision skills in first and third graders, Graves, (1979) has found that the strategy of revising by inserting information into a text develops long after children have already become adept at making deletions and adding new information as a continuation of a text. There is evidence in our data that making insertions is difficult, that even when children realized such a strategy was necessary, they were sometimes unable to carry it out. Consider, for example, this heroic attempt:

> Joe lived on Elm Street. Another Joe lived next door. Joe had a new bike and he wouldn't let the other Joe ride it...

These basic results have now been replicated with a group of 50 fourth graders and two additional groups of 20 sixth and seventh graders. In each case, texts without differentiating information proved more difficult to clarify. Most of the time, children seemed to run into trouble either because they attempted to apply a familiar referencing strategy (antecedent-repetition) without taking into account the effects of the particular context or because they didn't seem to understand how the alternate strategy of inserting new information into text actually works.

Co-referencing is, of course, only one type of relation among elements in a text. Writers must learn to signal many other sorts of relations as well. As far as I know, data concerning the development of strategies for constructing other types of text relations are simply not available, making it impossible for us to draw any general conclusions about the development of skill in constructing coherent text. Nonetheless, a few tentative comments seem appropriate.

Implications for Instruction and Assessment

First of all, the evidence concerning children's ability to detect ambiguity and anomaly has implications for both assessment and instruction. Most standardized tests attempt to assess students' writing by assessing students' skill in revising assorted tester-prepared texts, presumably on the assumption that revision provides a reasonable estimate of writing

skill and revision of another's text, a reasonable estimate of skill in revising one's own. Disregarding the validity of the first assumption for the moment, our data suggest that the second is probably ill-founded. Although revising tester-prepared texts may reasonably assess children's skill in detecting syntactic anomalies, such tests will seriously underestimate students' difficulties in handling referential ambiguity, at least in the elementary and junior high school years. Also, the ability to monitor one's own text apparently may call on a rather different set of cognitive skills, including an ability to put aside intended meaning and interpret text with just the information actually available to a reader in the words. As we have noted, this kind of perception is known to be difficult for elementary students and may in fact prove to be difficult for adults as well.

Apart from assessment, the data also have implications for instruction. Given the differences between the two types of editing, it is clear that practice in the one may not lead to skill in the other. Initially, it may be easier for students to perceive ambiguities and anomalies in the texts of others, and this may therefore be a good place for instruction to start. But if students are to become skilled in monitoring their own texts, they need considerable practice in doing this, quite apart from any practice they may have with other teacher- or student-generated materials.

Evidence from some of the other studies suggests that while elementary and junior high school students may have developed a number of basic strategies for achieving coherent text, they still need practice adapting these to the requirements of more challenging or unusual contexts. For example, while students seemed able to accomplish unambiguous referencing most of the time, they had difficulty in situations where they had to differentiate between two same sex characters, particularly in contexts where little differentiating information was otherwise available. This suggests that elementary and junior high school students would benefit from practice constructing referencing in some of these more challenging contexts. One important goal here would be to help children appreciate just how their usual strategies might fail and how alternate strategies might work to overcome these limitations.

It seems to me that children are more likely to gain an appreciation of how language functions to accomplish efficient and coherent text if instruction is actually organized around these functions. Typically, language instruction is organized in terms of syntax and especially parts of speech, even though many writing problems are more usefully conceptualized in terms of alternate ways of signaling various types of cohesive ties or text relations. Thus, for example, language instruction may be more relevant to the needs of a writer if it is organized around alternative means of accomplishing such functions as co-referencing, parallel organizations, or contrasts rather than analyses of such syntactic structures as adjectives or nouns. (For suggestions as to how such an approach to language instruction might be organized, the interested reader will want to consult Traugott and Pratt's 1980 introductory text on linguistics, particularly chapters five, six, and seven, as well as Halliday and Hasan's 1976 seminal grammar of text cohesion.)

Chapter 4

Learning to Write

Writing and Speaking

Most beginners come to writing with a well-developed set of conversational skills, and it is only sensible for them to try to adapt these old skills to the new task of writing. Unfortunately, many of the conventions and strategies appropriate for conversation turn out to be quite ill-suited to the needs of writing. One principal task for a beginner, then, is to come to appreciate just how the two differ and to learn some of the new communicative strategies appropriate to writing.

On the surface, at least, the differences between conversation and writing are obvious enough. For one thing, the language systems of speakers and writers have very different physical properties. Speech is aural and evanescent; writing, visual and relatively permanent. Speech conveys its meaning through a number of features, such as changes in pitch, rhythm, and loudness, which are not directly translated into writing. At the same time, the communicative activities of writers and conversational speakers occur under rather different physical constraints. Conversation involves relatively short exchanges among participants who share a physical and temporal space. By contrast, writing is a solitary activity, often involving the composition of extended portions of text for an absent reader who will receive it only after considerable time has elapsed.

These differences may seem trivial, especially when compared with the more striking fact that speakers and writers do, after all, share a common syntax and vocabulary, but they nonetheless result in some very large and important differences in the strategies through which spoken and written communication occur. In the following pages, I will discuss four that seem to pose particular problems to the young beginner.

Solo Performance

First of all, it seems that young beginners often have difficulty coping with the fact that writing involves a solo performance. By and large, conversation is a collaborative enterprise. Since participants generally share the same temporal and physical space,* they are free to query, clarify, and elaborate on each other's communications as well as incorporate each other's language through the use of ellipsis, repetition, and pronominalization. Indeed, conversational speakers are expected to participate in this way. By contrast, most writers tend to work alone. True, writers (and particularly classroom writers) can exchange ideas and react to each other's composing efforts, but in the end, writing results in

*Participants in telephone conversations do not, of course, share a physical space, although their interactions are nonetheless collaborative.

the production of an artifact which is attributable to a single author (or set of authors) who has responsibility for its construction and who usually indicates that responsibility by signing his or her name.

The differences can create several kinds of problems for an inexperienced writer. For one thing, as part of the collaborative nature of most conversations, speakers learn to keep their contributions (or "turns") relatively short and focused on one or two aspects of a particular topic. Expansions and elaborations, when they occur, generally come as a result of some query or challenge from other participants. As a result, beginners may feel uneasy with the task of filling up a "communicative space" entirely with their own messages. They may have difficulty settling on an appropriate length for their writings, particularly where the text forms are relatively unfamiliar. They also may lack appropriate techniques for elaborating or expanding on their own ideas. Bereiter (1979) reports this to be a problem in the expository writings of school-age children and Shaughnessy (1977, especially chapter 7) finds this to be a problem for adult beginners as well.

High Standards of Lexical and Syntactic Precision

A second problem for the beginner lies in the fact that writers cannot rely on nonlinguistic cues in order to establish a meaning for their texts. In most situations, conversational speakers can convey meaning with a number of extralinguistic cues, including intonation, facial expression, and gesture. These can often enable listeners to achieve an intended interpretation, despite considerable vagueness and ambiguity in the actual language itself. Consider, for example, this exchange taken from a family dinner conversation:

> Father: Maybe before the party, we can locate, uh, the flash, uh, light, you know. I mean the, my, uh...
> Mother: Can you make it a real effort?
> Father: Yeah, for the camera. Because I, I don't uh...
> Mother: It won't work without it?
> Father: I have to use all the available daylight then.
> Mother: What about fast film?
> Father: Well, that isn't as good, you don't really get rid of all the shadows.

On paper, much of the language is ambiguous, but the participants apparently understood each other. The dialogue continues without any interruptions for clarification, presumably because the participants are relying on various extralinguistic cues.

Writers cannot, of course, rely on these resources. Although they can provide pictures for their texts, as most beginners do, they will be expected to convey more and more of their meanings via words as they mature. Generally, this means that beginners must learn to adopt standards of lexical and syntactic precision that may be considerably higher than those required in conversational interaction. Thus, for example, the child who has come to rely on general nouns and deictic terms (such as thing, someone, kid, this, that, there, here) will have to develop more specific wordings for texts, and it may take considerable practice before new strategies for selecting wording are learned.

Deliberation and Revision

Beginners must also come to appreciate the fact that writing, far more than conversation, is a product of deliberation and choice. For the most

part, speech occurs rapidly. It is evanescent. Our memory for the exact wording of a spoken utterance is likely to decay rapidly once the utterance has been comprehended, and unless the speech has been tape-recorded, there is no way for a participant to go back and re-examine what was actually said. Conversationalists may elaborate and amend what was said, but they cannot actually erase or redo a message. As a result, conversational strategies do not include a notion of revision.

By contrast, revision lies at the very heart of the writing process, and one of the most crucial tasks for a beginner is to realize that much of what seemed unalterable in speaking is, in writing, open to endless deliberation and change. There are a number of reasons why this should be so. For one thing, writing is simply more available for scrutiny and reflection. While our memory for exact wording of written text will decay about as rapidly as our memory for speech, our knowledge of written text is not limitd by our memory. The text is there to be re-examined long after it has been read. In addition, since writing is produced less rapidly than speech and in a slower time frame, decision processes are more likely to be available for conscious awareness. This, in turn, makes it more likely that deliberation and revision will occur. Finally, as we have noted, writers are under more pressure to be precise and explicit in their choice of syntax and vocabulary, a constraint that may also lead to more deliberation and revision.

What a beginner must realize, is that unlike speech, writing is subject to any amount of revision. This realization can eventually evolve into a notion of systematic phases in the production of text: rough notes, first drafts, final copy, and so forth. What is at stake is not so much the notion that text can be corrected (although this is certainly part of the writing process), but the more basic concept that texts evolve and that unlike conversation, text need not be produced all at once at a single pass.

We know as yet very little about how the notion of revision develops and even less about how that notion evolves into the concept of distinct writing phases. We know from the work of Graves and his colleagues that even first and second graders spend a considerable amount of their "writing" time scanning or rereading segments of their on-going compositions and that even these youngest beginners make occasional changes in their texts (e.g., Graves, 1973). This indicates that some sort of evaluative behavior is part of the writing process virtually from the beginning. Most of these early revisions are quite circumscribed, involving no more than a word or two and resulting from no more than a simple proofreading of the text (Graves, 1979). It is not until children have had considerable writing experience that they begin to make more extensive changes involving substantial rearrangement of content and language (see, for example, the excellent account of one child's developing concept of revision in Calkins,

In part, the lengthy development of the concept of revision may be due to children's problems with the mechanics - erasing, inserting, making room, copying over - all of which may seem quite overwhelming to a young beginner who has yet to master the basics of transcription. Even if some of these problems could be solved (if, for example, children could use automatic word processors to relieve some of the burden), it is clear from Calkins' study that apart from mechanics, children still need to develop an appreciation of the extent to which text is revisable. For example, even when Calkins' nine-year-old youngster had come to understand that she could alternate beginnings for a story, she initially produced only alternate starting points for what amounted to the same sequencing of events. Months passed before her revisions began to reflect genuine alternatives in content organization.

The point, again, is that learning to write involves the fundamental notion that text, unlike speech, is essentially a product of revision. The notion is somewhat paradoxical because it suggests that speech, which is nontangible and evanescent, is nonetheless unchangeable, while writing, which is tangible and relatively permanent, is subject to any amount of revision.

Systematic Phases in the Production of Text

This leads us to our final point, which is simply that unlike conversation, texts done by experienced writers are produced in phases. For example, an experienced writer initially might go through an outline or rough-note phase in which efforts are focused on the generation of ideas: brain-storming, free association, discussion, role play, as well as a variety of research activities that may extend over long periods of time. At a later, first-draft stage, a writer might focus less on idea generation than on some integration of topic ideas with a plan for the discourse. In still later drafts, the focus is likely to switch to lexical and syntactic problems, and finally, to problems of spelling and punctuation. The point is that experienced writers frequently deal with the complexities of the writing task by adopting the very sensible strategy of divide and conquer.

Beginners, on the other hand, are likely to rely on what they have learned about conversation and figure that they are expected to produce their finished texts on a single pass, tackling all composition problems at once. At best, this can turn writing into a task that is far more onerous and frustrating than it really need be. At worst, the burden of producing finished copy all at once can prevent writers from producing anything at all.

Unfortunately, beginners are given few opportunities to learn how to organize their behavior. Some eventually manage, by trial and error, to figure out that writing, because of its revisability, can be produced in phases. But as Shaughnessy (1977) has pointed out, many never seem to learn and at age twenty approach writing with the same unrealistic and unproductive expectations that they must have brought to the task at the age of seven or eight.

Implications for Instruction

For the beginner, then, exposure to realistic notions of how to produce text must be at least as important as exposure to a wide range of genres or strategies for coherent wording. These notions can be fostered in several ways. For one thing, beginners may benefit from opportunities to talk with experienced writers about their work. Some readings may also be useful. Passages from some of the interviews in the Writers at Work volumes (e.g., Cowley, 1977) provide important insights into the way in which many of our greatest contemporary writers have learned to organize their work.

Young writers may also find it useful to swap tricks-of-the-trade with other students who are only slightly more experienced. These more advanced students may have greater insight into the problems of less experienced beginners, having only recently encountered the problems themselves. Generally, then, it may be useful for students to meet in mixed-age or mixed-level groupings from time to time, both to share and evaluate texts and to share ideas about various aspects of the composing process.

Older elementary and junior high school students may also benefit from opportunities to discuss their individual writing strategies with teachers or writing "coaches." The point would be not so much an evaluation of the finished text as an evaluation of the techniques and strategies that individual writers used in putting together their texts. One way of approach-

ing such a session would be to have students talk about their thoughts, plans, and intentions during the actual compositon of a text. Such an approach has been used with great success by Flower and Hayes in their research on the composing behaviors of adult writers. Their analyses of writers' comments have yielded important insights into the kind of problem-solving undertaken by more and less skilled adult writers. Students, together with their teachers, might benefit from undertaking a similar analysis of their own "talking aloud" sessions (see Flower and Hayes, 1979; Flower and Hayes, in press).

Finally, we might note that our discussion has certain implications concerning the effects of speaking practice on writing. Clearly, speech and writing draw on a common knowledge of grammar and vocabulary. What I have tried to emphasize in this section, however, is the fact that writing and conversational speaking draw on this knowledge in different ways. For one thing, writing seems to require a more deliberate selection, analysis, and evaluation of language. There are differences in participant roles as well, with writers functioning in a more solitary fashion to produce communications that may have very different purposes and follow different conventions from those governing conversation. What these differences suggest is that learning to write involves practice in making the kinds of decisions writers make and that these differ in substantial ways from those made during conversation. One important implication for instruction is that there may be less transfer from spoken to written discourse than teachers might expect, particularly for beginners.

Chapter 5

A Brief Summary

Our discussion has focused on three aspects of writing development: children's knowledge of text structure and their use of that knowledge in formulating plans for the organization of content in a given text; children's skill in constructing coherent wording for their texts; and children's appreciation of the communication strategies appropriate to writing.

As we have seen, the writings of school age children reflect considerable knowledge of certain discourse structures, especially knowledge of simple narratives and expository forms. Although we are reasonably certain that elementary age children have some knowledge of these structural properties, we have virtually no information as yet about how that knowledge might be acquired. In particular, we know little about the effects of practice: how much exposure to a form is necessary before children begin to acquire some knowledge of its principal features, and to what extent does reading in a particular form provide a child with the knowledge required for composing? Nor do we know much about the characteristics that make knowledge of a particular form more or less difficult to acquire: are some forms more readily acquired than others; which aspects seem to make a difference? We might expect, for example, that highly repetitive and clearly marked forms (such as the Fortunately text, page 5) might be more readily acquired and that exposure to many similar versions of a type of text might facilitate learning, but these are as yet only speculations. Generally, we know from studies of syntactic development that young children are amazingly adept at acquiring knowledge of syntactic structure. Whether they will prove to be equally efficient at learning about discourse structures remains to be seen.

Even if children's writings reflect certain structural knowledge, it is still unclear how that knowledge is used during composition. Is it a tacit knowledge, or is it available for conscious reflection and articulation? To what extent do children deliberately plan and compose in terms of structural features? We know from the work of Flower and Hayes that mature college age writers frequently plan and discuss their work in terms of structural units: e.g., they speak about plans for composing introductions, generalizations, examples, summaries, and so forth. We assume that such deliberate planning of writing goals helps writers maintain consistent discourse structures throughout the lengthy and complicated process of composition, but we have little information about when writers begin to represent their task in this way and how knowledge becomes available for conscious reflection. Existing research suggests that while individuals differ markedly in the ease with which conscious awareness of language features spontaneously develops, such awareness can also be deliberately provoked. Sinclair (1978), for example, reports that surprising events -- successes or failures -- can sometimes trigger conscious awareness of rela-

tions on nonverbal tasks, and she suggests that knowledge of success and failure may also aid in the development of awareness in language, with comments and questions from teachers and peers serving to provoke that knowledge. In support of such a notion is an observation by Read (1978) who notes that often no more than a question is needed to bring a phonological feature of language to a child's awareness, even in cases where the child has probably never been aware of the feature before (for other examples, see reports in Sinclair, Jarvella, Levelt, 1978).

Knowledge of conventional text structure provides writers with an important framework around which to organize the selection and arrangement of potential content. As we have seen, before potential content becomes a text, writers must transform it into some appropriate wording. Crucial to this process is a writer's skill in selecting the cohesive devices that tell a reader how the elements in a text are to be integrated (e.g., devices indicating that two noun phrases have the same referent or that two items are in contrast or parallel).

By the middle elementary years, most students have a basic understanding of how these devices work, since their texts are not generally incoherent. However, wordings that are ambiguous or misleading do crop up in the writings of most children at least through the junior high school years. Existing data indicate that we can attribute the persistence of these errors to at least three different sorts of problems. In the first place, it is more difficult to accomplish coherence in certain contexts, due to the fact that in these contexts some preferred wordings will not work. For example, it may be difficult for young writers to accomplish co-referencing in contexts where two same sex characters must be differentiated because pronouns will not make the intended differentiation: Jane and Sue went to the store. She got some soap. Even when writers make an effort to correct their faulty texts, certain kinds of problems will be extremely difficult to detect, especially those involving referential ambiguity.

At the same time, certain kinds of corrections will be more difficult than others for young writers to carry out. For example, corrections that require writers to insert new information into the midst of an already formed text appear to be more difficult to execute that those that require deletion of a portion of text or a continuation of the text without interrupting. There is little information about how children develop skill in constructing coherent text. I have suggested that children might benefit from instruction which is organized around text cohesion rather than syntactic analysis. For example, lessons could focus on problems in establishing co-reference or logical relations with instruction geared to helping children select among alternative linguistic devices for accomplishing a given cohesion task. More generally, the goal of such instruction would be to develop children's awareness of linguistic alternatives and of the role that context plays in choosing among them.

Finally, we have discussed some of the difficulties that beginners are likely to encounter as they approach the task of producing written text. Because writing and speaking draw on different communication strategies, many beginners may need help in organizing their writing behaviors to reflect these new strategies. They would probably benefit from opportunities to discuss their problems with more experienced writers.

The preceding discussions have a number of implications for education. Throughout, I have stressed a functional approach to writing instruction organized around the notion of writing as a particular kind of problem-solving activity. The purpose of this approach is to help children begin to think like writers and to view writing as a series of problems in text organization and wording.

In implementing this sort of functional approach, several strategies

are likely to prove useful. For one thing, it may be useful to keep the goals of particular assignments simple and well-articulated: e.g., if a primary goal is to help a student appreciate the difference between producing rough and polished drafts, then one need not also expect that a student produce an example of his or her very best writing. Just as the game of a golfer or tennis player may temporarily deteriorate while he or she is attempting to change a particular stroke, so the overall quality of a student's text may deteriorate, at least temporarily, while the student attempts to do things in a new way.

Along with appropriate and well-defined lesson aims, it is also important to provide many opportunities for students to articulate their strategies and plans. While knowledge of much of what we do during composition must remain tacit, many of our goals can become available for conscious reflection and this is likely to benefit students in at least two ways. For one thing, a writer with a well-articulated set of purposes is likely to find it easier to sustain a consistent course of action during the many interruptions and shifts in attention that inevitably accompany composition. Similiarly, well-articulated purposes are likely to make it easier for writers to identify errors and construct revision strategies. Apart from this, well-articulated goals also provide writers with a vocabulary for exploring and sharing ideas about text with others.

One obvious way to promote the articulation of goals and strategies is to have students meet regularly in small "editing groups" to consider each other's text. At the same time they could exchange ideas about the process of writing by describing their own experiences with various problem-solving procedures and by swapping information about especially effective tricks-of-the-trade (see suggestions in Moffett, 1968, and in Graves, 1978). While such sessions would serve the obvious and very useful purpose of enabling participants to exchange information, they also would provide an equally useful occasion for students to develop their awareness of concepts and plans by attempting to articulate these for others.

This discussion has emphasized the importance of organizing instruction around problems in text construction, either at the level of content organization or wording. The instruction should be aimed at helping children develop the very important awareness that there are alternate solutions and, in a very real sense, to conceive of writing as a choosing among these alternatives.

Writing is hard, and learning to write is probably one of the most intellectually demanding tasks that any person is likely to undertake. In a sense, the purpose of this discussion has been to indicate some of the ways in which these two statements might be true. It should be evident that learning to write is still very much a mysterious process. Nevertheless, I have indicated in a very general way some of the concepts and considerations that enter into writing, in the hope that this might clarify some of the ways in which development is likely to occur and some of the ways in which we can best foster that growth.

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